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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,117	06/20/2003	John Stanley Lovell	2060-92	9132
22442	7590	08/26/2005	EXAMINER	
SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202			JOHNSON, CHRISTINA ANN	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,117

Applicant(s)

LOVELL ET AL.

Examiner

Christina Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 5, 14-25 and 39-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-13 and 26-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I and Species B in the reply filed on May 13, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Following this election, claims 1-4, 6-13, and 26-38 are pending.
2. Claims 5, 14-25, and 39-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 13, 2005.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 11 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims 11 and 30 recite groups of compounds in improper Markush format. This limitation renders the claim indefinite because it is improper to use the term "consisting essentially of" instead of "consisting of." Refer to MPEP 2173.05(h).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6-13, and 26-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Shin et al. with Shih et al. to demonstrate an inherent state of fact.

Shin et al. (US 4,410,751) discloses a smectite clay, such as montmorillonite, useful in the production of olefins from alcohol and dimethyl ether. The smectite contains zirconium hydroxides that have been exchanged into the ion exchange sites of the clay (column 2, lines 23-28). It is taught that the exchange process involves placing the non-exchanged smectite in a solution capable of providing zirconium cation (column 2, lines 23-25). A specific example teaches that the concentration of zirconium should be 1 M (column 3, line 19). It is further taught that the zirconium hydroxides can be converted to zirconium oxides by heating in an atmosphere of oxygen (column 2, lines 53-63).

Shin et al. is silent as to the ion exchange capacity of smectites or montmorillonite. However, Shih et al. (US 6,734,131) teaches that montmorillonite necessarily has an ion exchange capacity of 80-150 meq/100 g (column 11, lines 40-45)

The disorganized and poorly crystallized structure of the metal oxides, and the water of hydration present in the metal oxide structure are not disclosed by Shin.

However, the reference discloses the same process of making using the same or similar

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starting materials. Therefore, it is the position of the examiner that the resulting product would inherently have the same structure. When the examiner has reason to believe that the functional language asserted to be critical for establishing novelty in claimed subject matter may in fact be an inherent characteristic of the prior art, the burden of proof is shifted to Applicants to prove that the subject matter shown in the prior art does not possess the characteristics relied upon. *In re Fitzgerald et al.* 205 USPQ 594.

With respect to claims 13 and 26, it is the position of the examiner that the contaminated catalyst taught by Shin et al. would meet the contaminated sorbent instantly claimed.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Shin et al.

8. Claims 1-4, 6-13, 26-35, and 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Kametaka et al. with Shih et al. to demonstrate an inherent state of fact.

Kametaka et al. (US 4,278,820) discloses a catalyst composition useful in the preparation of monoalkylene glycol monoethers. The catalyst composition comprises a clay containing mainly montmorillonite and at least one metal selected from the group consisting of aluminum, chromium, manganese, iron, tin, and thorium (column 1, lines 60-65). The clays contain metal ions that are introduced into it by treatment with an aqueous solution containing ions of that metal, which effects a cation exchange (column 2, lines 55-61). The clay is then calcined at temperatures between 300° and 600°C, which converts the metal ions to metal oxides (column 3, lines 23-24). Kametaka also

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discloses that the particle can be attached to an alumina sol or silica sol carrier (column 3, lines 19-21).

Kametake et al. is silent as to the ion exchange capacity of smectites or montmorillonite. However, Shih et al. (US 6,734,131) teaches that montmorillonite necessarily has an ion exchange capacity of 80-150 meq/100 g (column 11, lines 40-45)

The disorganized and poorly crystallized structure of the metal oxides, and the water of hydration present in the metal oxide structure are not disclosed by Kametaka et al. However, the reference discloses the same process of making using the same or similar starting materials. Therefore, it is the position of the examiner that the resulting product would inherently have the same structure. When the examiner has reason to believe that the functional language asserted to be critical for establishing novelty in claimed subject matter may in fact be an inherent characteristic of the prior art, the burden of proof is shifted to Applicants to prove that the subject matter shown in the prior art does not possess the characteristics relied upon. *In re Fitzgerald et al.* 205 USPQ 594.

With respect to claims 13 and 26, it is the position of the examiner that the contaminated catalyst taught by Kametaka et al. would meet the contaminated sorbent instantly claimed.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Kametaka et al.

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9. Claims 1-4, 6-13, and 26-37 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 59-216631.

JP 59-216631 discloses an iron-smectite clay prepared by contacting smectite-like montmorillonite with an aqueous solution of an iron acetate salt to exchange the exchangeable cations for iron acetate (Abstract). The exchanged clay is calcined at 340-500 degrees C to obtain iron oxide (Abstract). An example details the use of a clay having an ion exchange capacity of 115 meq/100 g (page 4). The amounts of materials taught by the reference would meet the instantly claimed amounts.

The disorganized and poorly crystallized structure of the metal oxides, and the water of hydration present in the metal oxide structure are not disclosed by the JP reference. However, the reference discloses the same process of making using the same or similar starting materials. Therefore, it is the position of the examiner that the resulting product would inherently have the same structure. When the examiner has reason to believe that the functional language asserted to be critical for establishing novelty in claimed subject matter may in fact be an inherent characteristic of the prior art, the burden of proof is shifted to Applicants to prove that the subject matter shown in the prior art does not possess the characteristics relied upon. *In re Fitzgerald et al.* 205 USPQ 594.

With respect to claims 13 and 26, it is the position of the examiner that the contaminated catalyst taught by the JP reference would meet the contaminated sorbent instantly claimed.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by JP 59-216631.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kametaka et al. with Shih et al. to demonstrate an inherent state of fact as applied above for claims 1-4, 6-13, 26-35, and 37-38.

The teachings of Kametaka et al. are applied as above.

The difference between the reference and the claim is that the reference does not disclose that the concentration of the polyvalent metal in solution is at least 1 molar. However, one of ordinary skill would appreciate that the effectiveness of an ion-exchange process would depend upon the concentration of the solution which is contacted with the ion exchange substrate and would therefore be motivated to optimize such in order to obtain the best results from the ion exchange process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art,

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discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

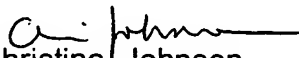
Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Johnson
Patent Examiner
Art Unit 1725

7/5/05

CAJ
July 5, 2005